

REMARKS

Claims 1-22 are pending in the present application, were examined, and stand rejected. In response, Applicants amend Claims 1-6, 10, 13-15 and 21. Applicants respectfully request reconsideration of pending Claims 1-22, as amended, and in view of at least the following remarks.

I. Information Disclosure Statement

The Examiner has rejected the Information Disclosure Statement filed May 8, 2001 for failure to comply with 37 CFR §1.98(a)(2). Applicants will submit a Supplemental Information Disclosure Statement in due course.

II. Claims Objections

The Examiner has objected to Claims 1, 5 and 13 for containing various informalities. In response, Applicants have amended Claims 1, 5 and 13 as requested by the Examiner. Accordingly, in view of Applicants' amendments to Claims 1, 5 and 13, Applicants respectfully request that the Examiner reconsider and withdraw the objection to Claims 1, 5 and 13.

III. Claims Rejected Under 35 U.S.C. §112

The Examiner rejected Claims 1-22 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular, the Examiner indicates that it is not clear what the "semantics structure" is. In the interest of compact prosecution, the Examiner has assumed that "semantic structure" is a "semantic relation."

Applicants respectfully submit that the term "semantic structure" is known in the art to refer to a structural meaning of, for example, a sentence as the term semantic is generally known to mean of or relating to meaning, especially meaning in language. Accordingly, as described with reference to Claims 1-22, the semantic structure relates to a structural meaning of a natural language sentence or a natural language query sentence inputted from the user.

Therefore, in view of Applicants' clarification of the term "semantic structure," Applicants respectfully submits that Claims 1-22 particularly point that and distinctly claim the subject matter which Applicants regard as the invention. Consequently, Applicants respectfully request that the Examiner reconsider and withdraw the 35 U.S.C. § 112, second paragraph, rejection of

rejection of Claims 1-22.

IV. Claims Rejected Under 35 U.S.C. §102(e)

The Examiner rejected Claims 5-7, 9, 14-16, 18-19, 20-22 under 35 U.S.C 102(e) as being anticipated by U.S. Patent No. 6,076,088 issued to Paik et al. ("Paik"). Applicants respectfully traverse this rejection. Applicant respectfully submits that Claims 5 and 20 include the following claimed features which are neither taught nor suggested by Paik:

transforming a natural language query sentence inputted from a user to conceptual graph depending on the standardized formats of sentence structure and semantics structure and searching information relevant to the requirement of the user among the indexed information.

In contrast, Paik describes a structure system wherein:

The system generates a representation of each document and query in terms of concept-relation-concept (CRC) triples, which, in a specific embodiment, are translated to a knowledge representation (KR) for subsequent use (col. 8, lines 63-67).

In addition, Paik describes the terms query, concept, relation, CRC triple and knowledge representation as follows:

Query: text that is input for the purpose of selecting a subset of documents from a document database. While most queries entered by a user tend to be short compared to most documents stored in the database, this should not be assumed. The present invention is designed to allow natural language queries. (Col. 5, lines 60-65)

Concept: Any named entity or idea, such as a person, place, thing, or organization. (Col. 6, lines 6-7)

Relations: Relations define the nature of the interaction, dependency, influence, or simple co-occurrence that binds to concepts. These relations allow the creation of concept-relation-concept triples by categorizing named entities and pieces of information in linguistic constructions at the more abstract conceptual level. Dyadic relations link pairs of concepts while monadic relations are associated with a single concept. Unless otherwise distinguished, the term "relation" will normally be taken to mean a semantic relation. (Col. 6, lines 8-17)

CRC triple: The CRC triple, or simply CRC, is the basic unit/subgraph of information in CHESS. It consists of two concepts linked by a dyadic relation. For instance, the sentence, "Georgia O'Keefe is a painter" can be distilled into a CRC in which O'Keefe is the first, or subject concept, linked to painter, the second, or descriptive concept, by the relation "ISA." (Col. 6, lines 18-24)

Knowledge Representation (KR) scheme: a precise and unambiguous formalism for representing information. (Col. 6, lines 27-28)

Based on the definition cited above, Applicants respectfully submit that the CRC triple which generates a representation of the query which is translated to a knowledge representation for subsequent use ignores the semantic structure of the query as provided by features of Claims 5 and 20.

Paik describes a database query process wherein:

In the current embodiment, conceptual graphs generated from queries are matched against conceptual graphs in the KR knowledge base. Basically, the degree of similarity is calculated by counting how many of the same concepts and relations are found in both the query KR units and each KR unit in the database (i.e., the number of concepts in relations which are the same in both.) (Col. 22, lines 19-25)

Accordingly, Applicant respectfully that the functionality provided by Paik parses receives queries and compares identified relations and concepts to information within the KR database and respond to queries by returning possibly relevant information which is extracted from the documents. Applicants support for the argument provided above is based on the fact that the techniques of Paik first subject documents to operations that extract of concept-relation-concept (CRC) triples which are stored in a data organization such as a database for query purposes (See col. 3, lines 49-55). Furthermore, using information which linguistic constructions in close proximity to an named entity or concept that extracts information from a database and organizes that information (See Col. 3, lines 61-63).

Accordingly, Applicants respectfully submits that base of the cited passages above, the Examiner fails to illustrate a teaching within Paik for transforming a natural language input from a user to build a semantic structure and searching information relevant to the requirement of the user among the index information as required by Claims 5 and 20. Therefore, Applicants respectfully submits that Claims 5 and 20 are patentable over Paik, as well as the references of record. Consequently, Applicants respectfully requests the Examiner reconsider and withdraw the Section 102(e) rejection of Claims 5 and 20.

Regarding Claims 6-9 and 14, Claim 6-9 and 14 depend from Claim 5 and therefore include the patentable features of Claim 5 as described above. Accordingly, Claims 6-9 and 14, based on their dependency from Claim 5, are also patentable over Paik as well as the references

of record. Consequently, Applicants respectfully requests that the Examiner reconsider and withdraw the 102(e) rejections of Claims 6-7, 9 and 14.

Regarding Claims 15 and 21, Claims 15 and 21 include the following claim feature which is nether taught nor suggested by either Paik or the references of record:

transforming the generated sequence to a conceptual graph by sentence analysis and semantic analysis depending on a standardized format of sentence structure and semantics structure.

As indicated above, the CRC triples which are generated from documents simply search for concepts and relations without analyzing a semantics structure of a document. Accordingly, for the reason described above, Applicants respectfully submit that Claims 15 and 21 are patentable over Paik, as well as the references of record but fail to teach semantic structural analysis as required by Claims 15 and 21. Consequently, Applicants respectfully request that the Examiner reconsider and withdraw the Section 102(e) rejection of Claims 15 and 21.

Regarding Claims 16 and 17, Claims 16 and 17 depend from Claim 15 and therefore includes the patentable claim features of Claim 15 and described above. Accordingly, Claims 16 and 17, based on its dependency from Claim 15, are also patentable over Paik as well as the references of record. Consequently, Applicants respectfully requests and the Examiner reconsider and withdraw the Section 102(e) rejection of Claims 16 and 17.

Regarding Claims 18 and 22, Claims 18 and 22 includes the following claim features which are neither taught nor suggested by either Paik or the references of record:

analyzing sentence structure and semantic structure of a natural language query sentence received from a user to transform it to a conceptual graph;

searching a conceptual graph in a database semantically nearest to the conceptual graph of the query and computing semantic relevance; and

retrieving indexed information of the search conceptual graph and provided to the user.

As indicated above, Paik ignores the semantic structure of a natural language query by limiting analysis of a query to CRC triple, as described above. Furthermore, the searching step alluded to by the Examiner within Paik determines the degree of similarity by calculating a count of how many of the same concepts or relations of the query match concepts or relations of the database (i.e., the number of concepts and relations which are the same in both). (See col. 22, lines 22-25).

Accordingly, Applicants respectfully submits that taking the count of matching concepts and relations between a query and a database does not teach or suggest searching a conceptual graph in a database semantically nearest to the conceptual graph of the query and computing semantic relevance as required by Claims 18 and 22. Accordingly, Applicants respectfully submits that Claims 18 and 22, based on the features described above, are patentable over Paik as well as the references of record. Consequently, Applicants respectfully request the Examiner reconsider and withdraw the Section 102(e) rejection of Claims 18 and 22.

Regarding Claim 19, Claim 19 depends from Claim 18 and therefore includes the patentable claim features of Claim 18 and described above. Accordingly, Claim 19 based on its dependency from Claim 18 and for at least the reasons described above is also patentable over Paik as well as the references of record. Consequently, Applicants respectfully requests and the Examiner reconsider and withdraw the Section 102(e) rejection of Claim 19.

V. Claims Rejected Under 35 U.S.C. § 103(a)

The Examiner rejected Claims 1-4, 8, 10-12 and 17 under 35 U.S.C 103(a) as being unpatentable over Paik in view of U.S. No. 6,081,774 issued to deHita et al. ("deHita"). Applicants respectfully traverse this rejection.

Claim 1 relates to an apparatus and method for generating and retrieving information based on a standardized format of sentence structure and semantic structure. The interactive processing means of the Claim 1 requires that information to be supplied or requested is described in the standardized formats at an initial stage. Therefore, accurate and clear information can be generated so that information transaction and transport can be encouraged.

Paik teaches an information extraction system that allows users to ask questions about documents in a database, and responds to queries by returning possibly relevant information which is extracted from the documents by analyzing queries and documents to determine a count of matching concepts and relations within a KR database (see Col. 22, lines 22-25)

deHita teaches an information retrieval system that represents the content of a language-based database being searched as well as the user's natural language query, in which common spelling mistakes are corrected. (see col. 17 lines 46-53)

For accurate information extraction and retrieval, it is necessary for information to be described in a standardized format of sentence structure and semantic structure. Hence Claim 1

requires that if data which is not matched to the standard format is input, the interactive response processor (an interactive processing means) outputs sentence format rule for which failure data from the input sentence analyzing means is corrected.

As correctly pointed out by the Examiner, Paik fails to teach an interactive processing means for outputting a sentence format rule for which failure data from the input sentence analyzing means is corrected depending on the standardized formats of sentence structure and semantic structure, and indexing and searching result, as required by Claim 1.

Furthermore incorporation of the teachings of deHita within Paik would merely enable Paik to correct common misspelling errors, as taught by deHita. As a result, the combination proposed by the Examiner would still fail to teach outputting a sentence format rule for which failure data from the input sentence analyzing means is corrected, as required by Claim 1.

Accordingly, Applicants respectfully submits that Claim 1, based on outputting a sentence format rule recites a feature that is not taught or suggested by either Paik, deHita or the references of record. Accordingly, Applicants respectfully submits that Claim 1, based on the features described above, is patentable over Paik, deHita and the references of record. Consequently, Applicants respectfully request the Examiner reconsider and withdraw the Section 103(a) rejection of Claim 1.

Regarding Claims 2-4, Claim 2-4 depend from Claim 1 and therefore include the patentable features of Claim 1 as described above. Accordingly, Claims 2-4, based on their dependency from Claim 1, are also patentable over Paik, deHita and the references of record. Consequently, Applicants respectfully requests that the Examiner reconsider and withdraw the 103(a) rejections of Claims 2-4.

Regarding Claims 10-12, Claim 10-12 depend from Claim 5 and therefore include the patentable features of Claim 1 as described above. Applicants respectfully submit that the Examiner's citing of deHita fails to introduce a teaching or suggestion regarding semantic structural analysis, as required by Claim 5. Accordingly, Claim 5, is patentable over Paik, deHita and the references of record. Therefore, Claims 10-12, based on their dependency from Claim 5, are also patentable over Paik, deHita and the references of record. Consequently, Applicants respectfully requests that the Examiner reconsider and withdraw the 103(a) rejections of Claims 10-12.

Regarding Claim 17, Claim 17 depends from Claim 15 and therefore include the patentable features of Claim 15 as described above. Applicants respectfully submit that the Examiner's citing of deHita fails to introduce a teaching or suggestion regarding semantic analysis, as required by Claim 15. Accordingly, Claims 15, is patentable over Paik, deHita and the references of record. Therefore, Claim 17, based on its dependency from Claim 15, is also patentable over Paik, deHita and the references of record. Consequently, Applicants respectfully requests that the Examiner reconsider and withdraw the 103(a) rejection of Claim 17.

CONCLUSION

In view of the foregoing, it is submitted that Claims 1-22, as amended, patentably define the subject invention over the cited references of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner believes a telephone conference would be useful in moving the case forward, he is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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Dated: December 9, 2003

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to: Mail Stop Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on December 9, 2003

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December 9, 2003